The observations of this comet were commenced on October 12, and continued up to the present time on every available occasion. Owing to the faintness of the comet it was impossible to use the bright-field micrometer. Hence the observations of October 12, 14, 15, and 19 were made with the square-bar micrometer by taking transits, the declinations being read at the circle of the Equatorial. As, however, such positions are not sufficiently exact, they have not been inserted in the preceding list.

During the whole period of the observations the comet has been a sufficiently distinguishable object, consisting of a round luminous patch, having a diameter of from $1'$ to $1''\cdot7$, with a nucleus situated somewhat towards the N.W. of the centre. This bright patch sometimes presented the appearance of having luminous projections, emanating from the side opposite to the nucleus. This was especially the case on November 10 and 14 when they assumed the appearance of a V.

The first series of measures were made with a ring-micrometer, sufficiently well constructed at the Observatory. The second series, dating from December 9, were made with a bright-wire micrometer, the wires being at $45°$ to the diurnal motion. The wires were placed very exactly in position by means of the position-circle of the telescope, which is read by two verniers.

Observations of Occultations of Stars by the Moon, and of Phenomena of Jupiter's Satellites, made at the Royal Observatory, Greenwich, in the year 1884.

(*Communicated by the Astronomer Royal.*)

Day of Obs.	Phenomenon.	Telesc.	Power.	Moon's Limb.	Mean Solar Time of Observation.			Obs.
Feb. 6 (*a*)	Disapp. 120 Tauri	E. Eq.	140	Dark	8	59	6·30	H.
Mar. 6	Disapp. λ Geminorum	E. Eq.	70	,,	10	9	31·89	H.
6	Disapp. λ Geminorum	Altaz.	100	,,	10	9	31·99	A. D.
May 8 (*b*)	Disapp. λ Virginis	E. Eq.	140	,,	9	13	15·42	H.
30 (*c*)	Disapp. 16 Sextantis	Simms' Eq.	220	,,	10	17	47·21	A. D.
Dec. 30	Disapp. 115 Tauri	E. Eq.	140	,,	8	28	20·56	H. T.

(*a*) Disappearance instantaneous.   (*b*) Some cloud about the Moon.
(*c*) Disappearance instantaneous.

Phenomena of Jupiter's Satellites.

Day of Obs.	Sat.	Phenomenon.	Telesc.	Power.	Mean Solar Time of Observation.	Mean Solar Time of N.A.	Obs.
					h m s	h m s	
1884, Jan. 11	II.	Tr. Ing. Bisection	E. Eq.	70	8 22 3	8 25 0	H.
		Last contact	,,	,,	8 25 48		
24	I.	Tr. Ing. First contact	,,	140	6 48 51	6 49 0	L.
		Last contact	,,	,,	6 53 1		
	I.	Tr. Egr. First contact	,,	,,	9 5 9	9 9 0	L.
		Last contact	,,	,,	9 10 48		
Feb. 12 (a)	II.	Tr. Ing. First contact	,,	70	6 27 35	6 31 0	H.
		Last contact	,,	,,	6 34 29		
	II.	Tr. Egr. First contact	,,	,,	9 25 46	9 25 0	H.
		Last contact	,,	,,	9 30 36		
15	I.	Occ. D. Last seen	,,	,,	9 9 53	9 9 0	A.P.
	I.	Ecl. R. First seen	,,	,,	12 5 44	12 5 28	A.P.
21 (b)	II.	Ecl. R. First seen	,,	140	8 16 17	8 16 9	L.
		Full brightness	,,	,,	8 16 32		
26	II.	Tr. Ing. First contact	,,	,,	11 9 37	11 10 0	L.
		Last contact	,,	,,	11 12 51		
29	I.	Occ. D. Bisection	,,	70	12 41 37	12 43 0	H.
		Last seen	,,	,,	12 44 9		

Day of Obs.	Sat.	Phenomenon.	Telesc.	Power.	Mean Solar Time of Observation. h m s	Mean Solar Time of N.A. h m s	Obs.
1884, Mar. 4 (c)	II.	Tr. Ing. First contact	E. Eq.	210	13 30 25	13 32 0	II.
		Last contact	,,	,,	13 34 0		
(d)	IV.	Ecl. R. First seen	,,	70	14 12 15	14 15 42	II.
		Full brightness	,,	,,	14 15 33		
6 (e)	II.	Ecl. R. First seen	,,	210	13 27 18	13 27 27	A. D.
9 (f)	III.	Occ. R. Bisection	S.E. Eq.	310	7 36 25		W. C.
		Last contact	,,	,,	7 37 40	7 41 0	,,
(g)		Clear of planet	E. Eq.	70	7 42 23		T.
(h)	III.	Ecl. D. First contact	S.E. Eq.	310	8 18 10		W. C.
		Bisection	,,	,,	8 20 40		,,
		Last seen	,,	,,	8 26 25	8 23 44	,,
		Began to fade	Simms' Eq.	220	8 17 38		L.
		= Sat. I. in brightness	,,	,,	8 21 42		,,
		Last seen	,,	,,	8 24 57		,,
10	I.	Tr. Egr. First contact	E. Eq.	70	8 35 59	8 38 0	II.
		Last contact	,,	,,	8 40 18		
12 (i)	IV.	Tr. Ing. First contact	Simms' Eq.	220	7 43 5		W. C.
		Bisection	,,	,,	7 47 50		,,
		Last contact	,,	,,	7 53 50		,,
(k)		First contact	E. Eq.	210	7 41 18	7 41 0	A. D.
		Last contact	,,	,,	7 52 46		,,

Day of Obs.	Sat.	Phenomenon.		Telesc.	Power.	Mean Solar Time of Observation. h m s	Mean Solar Time of N.A. h m s	Obs.
1884, Mar. 12 (*l*)	IV.	Tr. Egr.	First contact	E. Eq.	210	11 57 6	12 8 0	A. D.
			Last contact	,,	,,	12 12 3		
15	II.	Tr. Egr.	Bisection	Simms' Eq.	220	8 1 7	8 5 0	T.
			Last contact	,,	,,	8 3 21		
21 (*m*)	IV.	Ecl. R.	First seen	S.E. Eq.	310	8 14 59	8 22 19	M.
(*n*)			First seen	Simms' Eq.	220	8 19 28		W. C.
22	II.	Tr. Egr.	Last contact	E. Eq.	210	10 34 21	10 34 0	A. D.
24	II.	Ecl. R.	First seen	Simms' Eq.	220	7 56 2	7 56 6	T.
			Full brightness	,,	,,	7 57 32		
	I.	Tr. Ing.	First contact	,,	,,	10 1 27	9 59 0	T.
			Last contact	,,	,,	10 5 56		
(*o*)	I.	Tr. Egr.	Last contact	,,	,,	12 20 34	12 19 0	T.
29	II.	Tr. Ing.	Last contact	E. Eq.	70	10 5 37	10 11 0	H.
31	II.	Ecl. R.	First seen	,,	140	10 32 1	10 31 26	L.
			Full brightness	,,	,,	10 33 58		,,
			First seen	Simms' Eq.	220	10 32 19		H.
			Full brightness	,,	,,	10 34 23		,,
	I.	Tr. Ing.	First contact	,,	,,	11 48 10	11 52 0	,,
			Bisection	,,	,,	11 50 40		,,
			Last contact	,,	,,	11 54 59		,,
			First contact	E. Eq.	140	11 51 15		L.
			Last contact	,,	,,	11 55 25		,,

Day of Obs.	Sat.	Phenomenon.	Telesc.	Power.	Mean Solar Time of Observation. h m s	Mean Solar Time of N.A. h m s	Obs.
1884, Apr. 1 (*p*)	I.	Ecl. R. First seen	E. Eq.	210	12 34 21	12 34 13	T.
2	I.	Tr. Egr. First contact	,,	70	8 37 12	8 39 0	H.
		Last contact	,,	,,	8 43 11		A. D.
3 (*q*)	III.	Tr. Egr. Bisection	Simms' Eq.	220	8 48 55		
		Last contact	,,	,,	8 52 40	8 50 0	,,
		Last contact	E. Eq.	210	8 52 53		T.
7 (*r*)	II.	Occ. D. First contact	Simms' Eq.	220	7 41 6	7 43 0	A. D.
		Last contact	,,	,,	7 45 6		
9 (*s*)	I.	Tr. Ing. First contact	E. Eq.	210	8 14 18	8 13 0	T.
		Last contact	,,	,,	8 20 27		
10 (*t*)	I.	Tr. Egr. Last contact	,,	,,	10 34 5	10 33 0	T.
	I.	Ecl. R. First seen	Simms' Eq.	220	8 58 26	8 58 36	M.
		First seen	E. Eq.	70	8 58 39		H.
	III.	Tr. Ing. First contact	,,	,,	9 5 4		,,
		Last contact	,,	,,	9 13 53		,,
		First contact	Simms' Eq.	220	9 9 56	9 12 0	M.
		Bisection	,,	,,	9 14 36		,,
		Last contact	,,	,,	9 18 16		,,
16 (*q*)	I.	Tr. Ing. Last contact	,,	,,	10 12 50	10 8 0	H.

Day of Obs.	Sat.	Phenomenon.	Telesc.	Power.	Time of Observation h m s	Time of N.A. h m s	Obs.
1884, Apr. 21 (b)	III.	Ecl. D. Began to fade	Simms' Eq.	220	8 19 15		M.
		Half brightness	,,	,,	8 21 45		,,
		Last seen	,,	,,	8 25 10	8 23 10	,,
		Last seen	E. Eq.	140	8 22 59		S. D.
(u)	III.	Ecl. R. First seen	,,	,,	11 48 26		,,
		First seen	S.E. Eq.	310	11 54 31	11 53 55	M.
		Half brightness	,,	,,	11 56 46		,,
		Full brightness	,,	,,	11 59 26		,,
23 (v)	IV.	Occ. R. First seen	E. Eq.	220	8 14 21		
		Bisection	,,	,,	8 18 24	8 15 0	A. D.
(r)		Last contact	E. Eq.	210	8 19 11		
	I.	Tr. Ing. First contact	,,	,,	12 2 19		
		Bisection	,,	,,	12 4 34	12 3 0	,,
		Last contact	,,	,,	12 7 39		
24 (w)	I.	Occ. D. First contact	Simms' Eq.	220	9 12 14	9 15 0	L.
		First contact	E. Eq.	140	9 9 48		H.
28	III.	Occ. R. First seen	,,	,,	10 45 43		L.
		Last contact	,,	,,	10 47 58	10 49 0	,,
		First seen	Simms' Eq.	220	10 45 50		H.
		Last contact	,,	,,	10 50 25		,,
30	II.	Tr. Ing. Last contact	E. Eq.	140	9 59 11	10 0 0	,,
May 3	I.	Ecl. R. First seen	,,	210	9 14 15		
		Full brightness	,,	,,	9 17 2	9 13 53	A. D.

Day of Obs.	Sat.	Phenomenon.		Telesc.	Power.	Mean Solar Time of Observation. h m s	Mean Solar Time of N.A. h m s	Obs.
1884, May 9	I.	Tr. Ing.	First contact	E. Eq.	210	10 25 35	10 26 0	B.
			Bisection	"	"	10 28 44		
			Last contact	"	"	10 32 19		
10	IV.	Ecl. D.	Began to fade	"	140	10 1 33		L.
			Bisection	"	"	10 3 3		"
(b)			Last seen	"	"	10 5 7		"
			Last seen	Simms' Eq.	220	10 5 13	10 2 25	W. C.
(x)			Last seen	S.E. Eq.	"	10 6 50		M.
10 (y)	I.	Ecl. R.	First seen	"	"	11 9 25		"
			Bisection	"	"	11 11 41		"
			Full brightness	"	"	11 13 53	11 9 21	L.
			First seen	E. Eq.	140	11 9 47		"
			Full brightness	"	"	11 11 57		"
23 (c)	III.	Tr. Ing.	Last contact	"	"	9 56 45	9 55 0	A. P.
26	I.	Ecl. R.	First seen	Simms' Eq.	220	9 29 15		A. D.
			Full brightness	"	"	9 32 9	9 29 2	"
			First seen	E. Eq.	140	9 29 41		B.
Nov. 24 (z)	I.	Ecl. D.	Began to fade	"	70	14 10 18		H.
			Last seen	"	"	14 10 57	14 10 48	
Dec. 6	III.	Ecl. D.	Last seen	Simms' Eq.	220	15 47 52	15 43 55	H. T.
(λ)			Last seen	E. Eq.	140	15 47		L.

Notes.

(a) Slightly cloudy.

(b) Observation considered very good.

(c) *Jupiter's* limb indistinct.

(d) Very distinctly seen.

(e) Satellite appeared at full brightness four minutes after recorded time.

(f) Satellite not seen till 15ˢ before time recorded for bisection; sky hazy; definition poor.

(g) Satellite just clear of planet; cloudy.

(h) Satellite had become extremely faint at 8ʰ 26ᵐ 10ˢ, but was still visible by glimpses for 15ˢ longer. Definition good; edge of *Jupiter's* shadow seen sharp and distinct on the satellite. Time for first contact probably too late. Time of bisection fairly exact.

(i) The last contact had certainly not occurred at 7ʰ 53ᵐ 30ˢ, and was long past at 7ʰ 54ᵐ 50ˢ; clouds passing.

(k) Clouded over immediately after time noted for last contact, but observer considered that the last contact had then taken place.

(l) Planet very unsteady; satellite quite clear of *Jupiter* 2ᵐ after time of last contact.

(m) *Jupiter* frequently lost in cloud, but at the moment when the satellite was first seen the planet was shining very brilliantly. The satellite was so faint at the first glimpse, and was so long before it showed a sensible disk, that there can be no doubt that the first instant of reappearance was well caught. At 8ʰ 20ᵐ 49ˢ the satellite was at half brightness, at 8ʰ 24ᵐ 19ˢ ± at ¾ brightness. Clouds intervened before these times, and the planet was lost in cloud before the satellite had gained its full brightness. When glimpsed for a few seconds about 8ʰ 25ᵐ 19ˢ the satellite was not even then so bright as Satellite II.

(n) Extremely faint when first glimpsed; steadily and very distinctly visible 30ˢ later. Sky clouded over about 8ʰ 24ᵐ.

(o) *Jupiter* diffused; sky very thick and hazy.

(p) Definition bad; sky thick.

(q) Cloudy at first contact.

(r) Cloudy; observation uncertain.

(s) Definition very bad; sky foggy.

(t) Satellite at half brightness 1ᵐ 15ˢ after recorded time, and at full brightness 2ᵐ 20ˢ after recorded time.

(u) *Jupiter* low down and in some amount of mist and smoke; image very unsteady.

(v) Considered a good observation. *Jupiter* in mist and cloud constantly passing, but just for a moment or two the planet was well seen with the minutest point of the satellite projecting from the limb. Observation of bisection very rough; *Jupiter* faint. Clouds concealed the planet before the satellite was clear of the limb.

(w) Observation not good; satellite very faint; cloudy. *Jupiter* clear of cloud at 9ʰ 20ˢ, when there was no sign of the satellite.

(x) Considered a very good observation. Satellite steadily held though exceedingly faint to moment of disappearance. Sky very clear; images fairly steady.

(y) Considered a very good observation. Sky very clear, but images very unsteady.

(z) Satellite seemed to reappear for an instant about 10ˢ later.

The clear aperture of the object-glass of the S.E. Equatorial is 12·8 inches; of the E. Equatorial, 6¾ inches; of the Altazimuth, 4 inches; and of the Simms' Equatorial, 6 inches.

The initials W. C., H. T., A. D., M., T., L., H., A. P., B., and S. D., are those of Mr. Christie, Mr. Turner, Mr. Downing, Mr. Maunder, Mr. Thackeray, Mr. Lewis, Mr. Hollis, Mr. Pead, Mr. Bennett, and Mr. Dolman.

Occultations of Stars by the Moon, and Phenomena of the Satellites of Jupiter and Saturn, observed at Mr. Edward Crossley's Observatory, Bermerside, Halifax, in the year 1884, with the 9⅓-inch Cooke Refractor. By Joseph Gledhill, F.R.A.S.

Lunar Occultations.

1884.			G.M.T. h m s		
Oct.	4	No. 61	9 22 42	R.	Power 62 : bad sky.
		No. 63	9 35 55	R.	Mr. Crossley was at the telescope and Mr. Gledhill at the chronometer.
		No. 76	9 28 2	R.	
		No. 85	9 25 52	D.	
		No. 82	9 25 40	D.	
			10 37 28	D.	Small double star; angle about 140° from N.
			10 45 36	D.	Small star; angle about 45°.
			9 44 30	D.	„ „ 170°.
	5	*o* Piscium	9 8 0		Near approach; distance from nearest point of limb 3′ 14″. Power 60.
	12	α Cancri	18 1 33	D.	Power 240.
Nov.	5	111 Tauri	9 9 5	D.	Power 62.
		115 Tauri	10 2 7	D.	„
			10 46 40	R.	„
	7	68 Gemin.	11 15 59	D.	„
			12 16 19	R.	„
	9	*h* Leonis	13 59 59	D.	Thin cloud near Moon.
			15 4 35	R.	Clear sky. Power 62.
	11	76 Leonis	The star escaped occultation.		
	25	θ Aquarii	5 39 7	D.	Bad sky. Power 62.
			6 52 12	R.	„ „
	29	*o* Piscium	The star escaped occultation.		
Dec.	3	B.A.C. 1930	Watched from 10.10 till 10.51; no star seen near Moon.		